STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243-0435

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Via Electronic Mail to wdwhite0@tva.gov
Attn: W. Douglas White, NEPA Specialist
Tennessee Valley Authority
400 West Summit Hill Drive, WT 11D
Knoxville, Tennessee 37902

Dear Mr. White:

The Tennessee Department of Environment and Conservation (TDEC) appreciates the opportunity to provide comments on the Tennessee Valley Authority (TVA) Draft Environmental Assessment (EA) for the *Nolichucky Dam Gate Replacement Project*, located at Nolichucky River Mile 46, just east of Highway 107/70 (Asheville Hwy) and about 7.5 miles south of Greeneville, in Greene County, Tennessee. Nolichucky Reservoir, also known as Davy Crockett Lake, extends about 6 miles upstream from the dam. The Nolichucky Dam is a decommissioned hydroelectric facility with no active means of controlling the reservoir's water level and is owned and maintained by TVA.[1] In addition to replacing the dam gate, TVA is evaluating options to manage sediment that has accumulated upstream of the dam, to support replacement of the gate. TVA's preferred alternative is Alternative B2, Replace the Existing Gate and No Dredging in the Nolichucky Reservoir.

Actions considered in detail within the Draft EA include:

- **Alternative A – No Action Alternative**. Under this alternative, TVA would not replace the Nolichucky Dam gate. Consequently, TVA would not be able to temporarily remove water from the downstream face of the dam to allow inspection of the spillway. This alternative would not satisfy the project purpose and need and, therefore, is not considered viable or reasonable.

[1] The dam was originally constructed in 1913 as a hydropower facility by the Tennessee Eastern Electric Company to provide power to the surrounding areas. TVA acquired the facility in 1945. Nolichucky Dam is a concrete, gravity overflow structure containing two primary water barrier structures – the non-overflow section and the spillway section. The non-overflow section is approximately 122 feet long and 94 feet high. Originally, the non-overflow section included four intake structures for the powerhouse. The spillway is 360 feet long and is comprised of a larger ungated section and a smaller "nonfunctioning" bulkhead gate. Current spillway flow is unregulated and acts as a run-of-the river project. The powerhouse is located on the right descending bank of the river just downstream from the intake structures in the dam. The powerhouse was decommissioned in 1972, at which time a 25-foot-wide by 10-foot-high vertical lift gate was constructed in the overflow spillway adjacent to the intake structure to permit limited drawdowns of the reservoir. In 1995, the gate opening was sealed with a reinforced concrete bulkhead upstream of the gate. Electrical power and the gate motor were removed at that time. In the current condition, there is no active means of controlling the Nolichucky Reservoir water level.

- **Alternative B1 – Replace the Existing Gate and Dredge in the Nolichucky Reservoir**. Alternative B1 consists of removing the existing concrete bulkhead, gate, and remaining hoisting system, and installing a new gate and hoisting system with installation of a concrete bulkhead in the spillway slot between the non-overflow training wall and existing spillway gate pier. There are two possible designs for the new gate.[2] During construction of the new gate, TVA would dredge the accumulated sediment in the southeast corner of the upstream side of the dam. Based on preliminary estimates, TVA has estimated that this option would entail the dredging of up to 10,000 cubic yards (yd^3) of sediment from the reservoir upstream of the dam.[3] A floating dredge would be used to remove the sediment upstream of the dam.[4] The dredged sediment would be pumped into discharge piping which would extend from the dredging operation on the water to the one or both of the dredge material placement areas.[5] Dredge discharge piping would be placed onsite alongside the existing asphalt roadway loop and secured in place with fence posts. Geotextile fabric tubes, or Geotubes, would be located in the dredge material placement areas and used to capture the sediment slurry coming out of the discharge pipe.[6] In addition to the replacement of the gate and sediment removal, TVA would raise the elevation of the spillway section that is located between the right gate pier and the non-overflow section of the dam. This 6-foot wide section would then match the top elevation of the proposed gate.

- **Alternative B2 – Replace the Existing Gate and No Dredging in the Nolichucky Reservoir.** Under this alternative, TVA would replace the existing gate as described under Alternative B1. However, TVA would not dredge sediment on the upstream side of the dam. Therefore, implementation of this alternative would not impact the area designated for the potential location of dredging or stabilization ("Area 4") and would not include development or use of dredge disposal Area 1 or 2. In addition, replacement of the dam gate under this alternative would utilize the existing access to the dam and would not require the construction of a temporary access road.

- **Alternative B3 – Replace the Existing Gate and Place Riprap Upstream of the Gate.** This alternative would be the same as Alternative B1; however, TVA would not dredge, and therefore implementation of this alternative would not include development or use of dredge disposal Area 1 or 2. TVA would use an excavator to place smaller stone overlain by riprap upstream of the dam in the reservoir and on exposed

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[2] Option 1 would replace the gate with a system similar to the system that was formerly in operation; however, it would be 2 feet taller than the existing gate which would allow the gate to have additional height over the spillway crest during normal flows. The estimated discharge capacity of this alternative is the same as the gate formerly in operation (2,500 cubic feet per second) (cfs). Option 2 would replace the gate with two sluice gates. The discharge capacity of the sluice gates under this option is approximately 2,000 cfs. Because environmental impacts are expected to be similar regardless of which gate design is chosen, both designs are analyzed concurrently. Over time, sediment has built up on the upstream side of the dam.

[3] In support of this alternative, construction activities would require construction of a temporary access road that would be located next to the dam. This ramp would be constructed with stone pushed to the edge of the reservoir and used as a service ramp for personnel and support equipment.

[4] The floating dredge would be placed in the water via the existing upstream boat ramp at Bird's Bridge Access located 5 miles upstream from the dam. No construction activities would be needed at the Birds Bridge access site.

[5] Both placement areas are located on undeveloped TVA property that is currently used to access an existing substation and are not accessible to the public. Area 1 is a 1.1-acre site located east of the existing asphalt driveway loop, and Area 2 is a 0.6-acre site located west of the asphalt loop. Area 1 contains some forested cover, and Area 2 is bisected by an overhead transmission line corridor and is maintained in an herbaceous state. Site preparation would include clearing and grubbing of vegetation. The vegetation would be placed on the ground to aid in erosion and sediment control. All trees over 3 inches in diameter would be left in place. Previously disturbed, paved areas near the entrance of the property would be used for temporary laydown and parking.

[6] According to TVA, the tubes are an effective dewatering technology which provide confinement of the fine solids inside the container, while allowing water to permeate through the textile. As the water drains, the solids continue to densify and consolidate over time. Once the solids are fully consolidated, the tubes would be cut and removed and the sediment material would remain onsite where it would be graded, blended into existing contours, and stabilized in place.

banks identified as Area 4. This alternative would require approximately 4,500 yd^3 of riprap which would be obtained from existing permitted quarries in the area. In support of this alternative, construction activities would require construction of a temporary access road that would be located next to the dam as described for Alternative B1.

TDEC has reviewed the Draft EIS and has the following comments regarding the proposed action and its alternatives:

Water Resources

TDEC recommends that the Final EA include a more detailed plan regarding how TVA will control the release of sediments downstream during dam gate replacement, as explained in the preferred alternative. Additionally, TVA is encouraged to include information in the Final EA addressing any resulting changes in hydrologic releases associated with the proposed action and its alternatives and what impacts might occur to the downstream channel and habitat integrity.[7]

Section 2.2 "Alternatives Considered but Eliminated from Further Discussion" of the Draft EA considers several additional project alternatives beyond the alternatives (A, B1, B2 and B3) evaluated in the Draft EA. However, TVA did not include a "Dam Removal" alternative in the Draft EA. Inclusion of such an alternative could eliminate the need for TVA to "be able to manage the reservoir levels to perform dam safety inspections or investigations within the spillway portion of the dam to support the operation and maintenance of the TVA Reservoir System," and would align with the existing function of the reservoir and nonfunctioning dam as a run of river project.[8] TDEC recommends that TVA further consider the alternative of dam removal in the Final EA, as this option would potentially satisfy the purpose and need of the project while contributing to the improvement of aquatic habitats in the Nolichucky River, or clarify the current purpose of the nonfunctioning dam.

Solid Waste

Section 3.16 "Solid and Hazardous Waste" of the Draft EA describes the potential for generation of solid and hazardous wastes associated with the project and its proposed alternatives. TDEC recommends that the Final EA provide additional detail regarding how proposed alternatives will generate specific solid and hazardous waste streams and subsequently, which Tennessee Solid and Hazardous Waste Rules and Regulations as well as other applicable regulations may be triggered.

As part of its investigation of potential impacts, TVA performed Toxicity Characteristic Leachate Procedure (TCLP) testing on the sediment upstream of the dam. While the material is reported to not contain significant amounts of toxic metals—concentrations were below the EPA's allowable limits for non-hazardous waste disposal— the sediment upon its complete hazardous waste determination would fall under TDEC Division of Solid Waste Management's Special Waste program, if disposal was the intended fate of the material.[9] If the

[7] If TVA needs further information please Jimmy Smith, Manager of the Natural Resources Unit, TDEC – Division of Water Resources at jimmy.r.smith@tn.gov or (615) 532-0648.
[8] Section 1.1 "Introduction and Background" see, "Current spillway flow is unregulated and acts as a run-of-the river project."
[9] A special waste application would need to be completed and sent to DSWM with the TCLP results for review. For more information about the special waste program please visit https://www.tn.gov/environment/permit-permits/waste-permits1/special-waste-approval.html.

intended fate of the dredged sediment is for it to be land applied as defined by Areas 1, 2, and 4 of the Draft EA, TVA will need to submit a written petition for a beneficial use determination to TDEC DSWM.[10]

TDEC appreciates the opportunity to comment on this Draft EA. Please note that these comments are not indicative of approval or disapproval of the proposed action or its alternatives, nor should they be interpreted as an indication regarding future permitting decisions by TDEC. Please contact me should you have any questions regarding these comments.

Sincerely,

Kendra Abkowitz, PhD
Assistant Commissioner, Office of Policy and Sustainable Practices
Tennessee Department of Environment and Conservation
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cc: Daniel Brock, TDEC, DOA
Lisa Hughey, TDEC, DSWM
Tom Moss, TDEC, DWR
Stephanie Williams, TDEC, DNA

[10] DSWM's policy "Beneficial Use of a Solid Waste (PN028)" describes the materials and information that must be included in the petition and the regulations that govern land application of wastes. More information regarding this policy can be found at https://www.tn.gov/environment/program-areas/solid-waste/solid-waste-management/solid-waste-policies-guidance.html.